

EXHIBIT A

**Invention of
"A Distributed Persistence Framework for e-Commerce and m-
Commerce Java™ Object Models"**

Atul Elhence, Ramesh Venkataramaiah and Michael Harold

Objective: To record the intellectual property of our invention related to Java Object Model Persistence Framework for transactional systems in a distributed environment for electronic commerce (e-Commerce) and mobile commerce (m-Commerce). We have created a standards-based Distributed Persistence Framework (DPF) that will aid in persisting components in any peer-to-peer transaction scenario. This service will store, retrieve, query and modify Java objects in a business transaction very much similar to traditional client-server/first-generation Internet systems environment but with less complexity and more reusable techniques.

In particular, our invention has following characteristics/advantages:

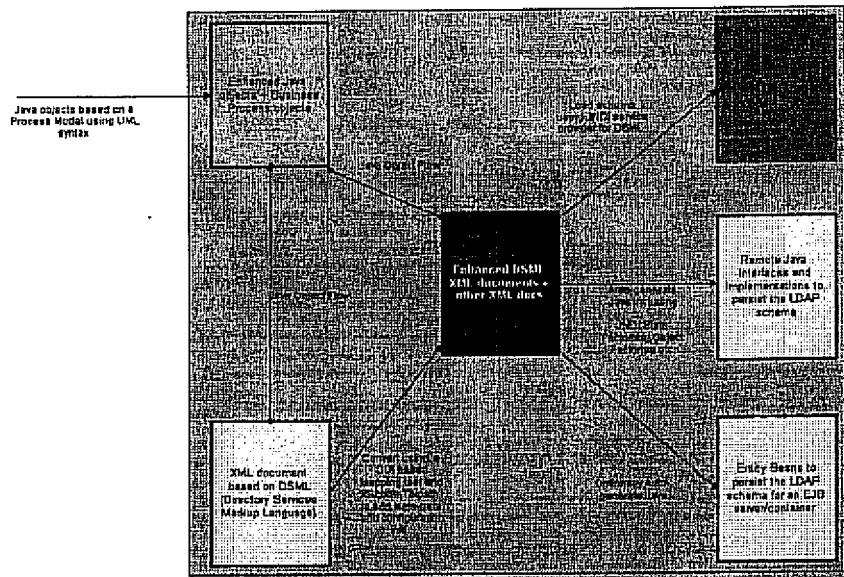
- **Distributability-** The framework works the way the Internet works: Our framework will support PDA's and hand-held wireless devices over existing 2G or next-generation 3G wireless networks supporting e-commerce/m-commerce business transactions. Provides full support for the Distributed paradigm of the Internet, as data can be distributed and replicated across multiple LDAP servers.
- **Advanced-** Minimize or eliminate traditional client-server based "Object-to-Relational" mapping (OR Mapping) involved in the use of RDBMS.
- **Flexibility and Extensibility-** An object model in a software system mirrors a real-world scenario of a business transaction and any data required for that transaction. In a traditional software system, any change in the business processes (for business reasons or performance related) results in OR Mapping changes. Such a change produced by the object model for any reason, in our solution, is automated and seamlessly integrated with the persistence framework.
- **Standards Support-** This invention utilizes methods to integrate with existing standards and protocols for easier access to other technologies. Auto-generates Remote Interfaces and Implementations, and optionally Entity Beans for an Enterprise JavaBeans (EJB) Server. Integrates with well known industry standards like:
 - JNDI (Java Naming and Directory Interface) and Lightweight Directory Access Protocol (LDAP).
 - XML (Extensible Markup Language) via DSML (Directory Standards Markup Language).

Terminology-

- **m-Commerce:** Mobile commerce, a next generation of Internet e-commerce solution based on wireless, handheld/embedded devices, which supports mobility.
- **Persistence:** The enduring storage of the state of an object.
- **Storage Mechanisms:** A logical device providing the lower level storages. Few well-known storage mechanisms are:
 - Object Databases - Efficient but not distributable.
 - Relational Databases- Prevalent but neither efficient nor distributable.
 - Hierarchical Databases- Distributable, Secure but provides no transactional services.

- **OR Mapping:** A mapping between a class and its persistent store (for example, a table in a database), and between object attributes and the fields (column) in a record.
- **Object Identity:** A unique object identifier used for relating database records to objects.
- **Serialization and deserialization:** A robust and standard Java mechanism to store and retrieve binary files (objects) through a standard interface.
- **Caches:** The framework utilizes a cache (memory) to store URI/URL's of serialized objects and its key attributes/identifiers. This enhances the performance related to read operation in storage mechanism.
- **Metadata:** Objects having complex structures and associations with other lower level objects. Acts as a gateway for lower level objects.
- **Transaction State of Objects:** State of an object in terms of their relationship to the current transaction.
- **Transaction Operation:** Commit and rollback operations.
- **Query:** Finding an attribute or value of a Java object based on some criteria.

Fig 1: Schematic showing Distributed Persistence Framework (DPF), it's components and flow.



60/228597



06/28/88

Class	Subclass	ISSUE CLASSIFICATION

PROVISIONAL
APPLICATION
NUMBER

Scan@Bg
CTH
RW

C

POSITION	INITIALS	ID NO.	DATE
FEE DETERMINATION			
O.I.P.E. CLASSIFIER	JH0850	11/14/00	
FORMALITY REVIEW			
RESPONSE FORMALITY REVIEW			

(LEFT INSIDE)

PATENT APPLICATION



60228597

070026

CONTENTS

_____	1. Application _____ papers.	_____
_____	2. <i>Request for access</i>	<i>11/27-07</i>
_____	3. _____	_____
_____	4. _____	_____
_____	5. _____	_____
_____	6. _____	_____
_____	7. _____	_____
_____	8. _____	_____
_____	9. _____	_____
_____	10. _____	_____
_____	11. _____	_____
_____	12. _____	_____
_____	13. _____	_____
_____	14. _____	_____
_____	15. _____	_____
_____	16. _____	_____
_____	17. _____	_____
_____	18. _____	_____
_____	19. _____	_____
_____	20. _____	_____
_____	21. _____	_____
_____	22. _____	_____
_____	23. _____	_____
_____	24. _____	_____
_____	25. _____	_____
_____	26. _____	_____
_____	27. _____	_____
_____	28. _____	_____
_____	29. _____	_____
_____	30. _____	_____
_____	31. _____	_____
_____	32. _____	_____

PATENT APPLICATION SERIAL NO. _____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

08/31/2000 RHARIS1 00000062 100447 60228597

01 FC:114 150.00 CH

PTO-1556
(5/87)

*U.S. GPO: 1999-459-082/19144

8-29-00

A/prod

PTO/SF/16 (6-95)
 Appro: use through 04/11/98. OMB 0551-0037
 Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

PROVISIONAL APPLICATION COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION under 37 C.F.R. § 1.53(e)

Docket Number: 41276-22

Type a plus sign (+)
 inside this box —

36879 U.S. PTO
 60/228597
 08/28/00

INVENTOR(S)/APPLICANT(S)			
LAST NAME	FIRST NAME	MIDDLE INITIAL	RESIDENCE (CITY AND EITHER STATE OR FOREIGN COUNTRY)
Elhence	Atul		Shreveport, LA
Venkataramalah	Ramesh		Shreveport, LA
Harold	Michael		Shreveport, LA
TITLE OF THE INVENTION: A Distributed Persistence Framework for e-Commerce and m-Commerce Java™ Object Models			
CORRESPONDENCE ADDRESS: Raymond Van Dyke Jenkins & Gilchrist, P.C. 1445 Ross Avenue, Suite 3200 Dallas			
(STATE) TEXAS	(ZIP CODE) 75202-2799	(COUNTRY) USA	
ENCLOSED APPLICATION PARTS (check all that apply):			
<input checked="" type="checkbox"/> Specification Number of Pages 2		<input type="checkbox"/> Small Entity Statement	
<input type="checkbox"/> Drawing(s) Number of Figures		<input type="checkbox"/> Other (specify)	
<input type="checkbox"/> A check in the amount of \$ is enclosed to cover the provisional application filing fees. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge or credit any over or under payments of filing fees to Deposit Account Number: 10-0447			Filing Fees Due for Provisional Application: <input checked="" type="checkbox"/> \$150.00 <input type="checkbox"/> \$75.00

Was the invention made by an agency of the United States Government or under a contract with an agency of the United States government?

☒ No.

☐ Yes, and the name of the U.S. Government agency and the government contract number(s) are:

Respectfully submitted,

SIGNATURE

Raymond Van Dyke

DATE

August 28, 2000

NAME Raymond Van Dyke

REGISTRATION NO.
 (if appropriate)

34,746

☐ Additional inventors are being named on separately numbered sheets attached hereto.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Atul Elhence, Ramesh Venkataramaiah and Michael Harold

For: A Distributed Persistence Framework for e-commerce and m-Commerce Java™ Object Models

3c679 U.S. PTO
60/228597
08/28/00

To:

Box Provisional Patent Application
Assistant Commissioner for Patents
Washington, D.C. 20231

CERTIFICATE OF MAILING BY EXPRESS MAIL	
"EXPRESS MAIL" Mailing Label No. E1524958775US	
Date: August 28, 2000	
Name:	CAROL MARSTALLER
Signature:	<i>Carol Marstaller</i>

Dear Sir:

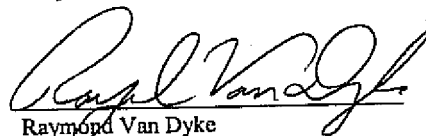
TRANSMITTAL LETTER FOR A PROVISIONAL PATENT APPLICATION
UNDER 37 C.F.R. § 1.53(c)

- ☒ Transmitted herewith is a Provisional Patent Application under 37 C.F.R. § 1.53(c) as identified above.
- ☐ Transmitted herewith is an Assignment to:

along with the required cover sheet. Please return the recorded assignment to the undersigned.
- ☐ The assignment recording fee under 37 C.F.R. § 1.21(h) of \$40.00 is herewith enclosed.
- ☐ The filing fee for a Provisional Patent Application under 37 C.F.R. § 1.16(k) in the amount of \$ _____ .00 is herewith enclosed.
- ☒ TOTAL FEE REQUIRED \$ 150.00
- ☒ Please charge our Deposit Account No. 10-0447 in the amount of \$ 150.00. This document is attached in duplicate.

- ☐ A check in the amount of \$_____.00 is attached. Please charge any deficiency or credit any overpayment to Deposit Account No. 10-0447.
- ☒ The Commissioner is hereby authorized to charge any underpayment or credit any overpayment of the following fees which may be associated with this communication to Deposit Account No. 10-0447.
- ☒ Any additional provisional patent application processing fees or surcharges under 37 C.F.R. §§ 1.16 or 1.17.
- ☒ The Commissioner is hereby authorized to charge any underpayment or credit any overpayment of the following fees due during the entire pendency of this application to Deposit Account No. 10-0447.
- ☒ Any provisional patent application processing fees under 37 C.F.R. §§ 1.16-1.20.

Respectfully submitted,



Raymond Van Dyke
Registration No. 34,746

Date: August 28, 2000

JENKENS & GILCHRIST, P.C.
1445 Ross Avenue, Suite 3200
Dallas, Texas 75202-2799
(214) 855-4708
(214) 855-4300 (Fax)

REQUEST FOR ACCESS TO AN ABANDONED APPLICATION UNDER 37 CFR 1.14

Bring completed form to:
File Information Unit, Room 2E04
2900 Crystal Drive
Arlington, VA 22202-3514

Telephone: (703) 308-2733

In re Application of

Application Number

60/228,597

Filed

8-28-2000

Paper No. #2

I hereby request access under 37 CFR 1.14(a)(1)(iv) to the application file record of the above-identified ABANDONED application, which is not within the file jacket of a pending Continued Prosecution Application (CPA) (37 CFR 1.53(d)) and which is identified in, or to which a benefit is claimed, in the following document (as shown in the attachment):

United States Patent Application Publication No. 2002/0032775, page, line

United States Patent Number, column, line, or

WIPO Pub. No., page, line

Related Information About Access to Applications Maintained in the Image File Wrapper System (IFW) and Access to Pending Applications in General

A member of the public, acting without a power to inspect, cannot order applications maintained in the IFW system through the FIU. If the member of the public is entitled to a copy of the application file, then the file is made available through the Public Patent Application Information Retrieval system (Public PAIR) on the USPTO Internet web site (www.uspto.gov). Terminals that allow access to Public PAIR are available in the Public Search Room. The member of the public may also be entitled to obtain a copy of all or part of the application file upon payment of the appropriate fee. Such copies must be purchased through the Office of Public Records upon payment of the appropriate fee (37 CFR 1.19(b)).

For published applications that are still pending, a member of the public may obtain a copy of:
the file contents; the pending application as originally filed; or any document in the file of the pending application.

For unpublished applications that are still pending:

- (1) If the benefit of the pending application is claimed under 35 U.S.C. 119(e), 120, 121, or 365 in another application that has: (a) issued as a U.S. patent, or (b) published as a statutory invention registration, a U.S. patent application publication, or an international patent application publication in accordance with PCT Article 21(2), a member of the public may obtain a copy of: the file contents; the pending application as originally filed; or any document in the file of the pending application.
- (2) If the application is incorporated by reference or otherwise identified in a U.S. patent, a statutory invention registration, a U.S. patent application publication, or an international patent application publication in accordance with PCT Article 21(2), a member of the public may obtain a copy of the pending application as originally filed.

Brandie Chaney

Signature

Brandie Chaney

Typed or printed name

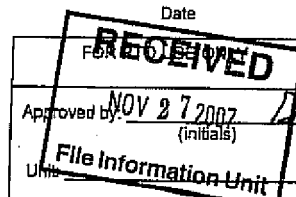
Registration Number, if applicable

(7) 803-2180

Telephone Number

11-27-07

Date



This collection of information is required by 37 CFR 1.11 and 1.14. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. BRING TO: File Information Unit, Room 2E04, 2900 Crystal Drive, Arlington, Virginia.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



UNITED STATES PATENT AND TRADEMARK OFFICE

COMMISSIONER FOR PATENTS
UNITED STATES PATENT AND TRADEMARK OFFICE
WASHINGTON, D.C. 20231
www.uspto.gov



Bib Data Sheet

SERIAL NUMBER 60/228,597	FILING DATE 08/28/2000 RULE -	CLASS -	GROUP ART UNIT -	ATTORNEY DOCKET NO. 41276-22	
APPLICANTS Atul Elhence, Shreveport, LA ; Ramesh Venkataramalah, Shreveport, LA ; Michael Harold, Shreveport, LA ; ** CONTINUING DATA ***** ** FOREIGN APPLICATIONS ***** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 11/14/2000 -					
Foreign Priority claimed <input type="checkbox"/> yes <input type="checkbox"/> no 35 USC 119 (a-d) conditions <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> Met after not Allowance Verified and Acknowledged <u>Examiner's Signature</u> <u>Initials</u>		STATE OR COUNTRY LA	SHEETS DRAWING -	TOTAL CLAIMS -	INDEPENDENT CLAIMS -
ADDRESS Raymond Van Dyke Jenkins & Gilchrist P C 1445 Ross Avenue Ste 3200 Dallas ,TX 75202-2799					
TITLE Distributed persistence framework for e-Commerce and m-Commerce java TM object models					
FILING FEE RECEIVED 150	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		<input type="checkbox"/> All Fees <input type="checkbox"/> 1.18 Fees (Filing) <input type="checkbox"/> 1.17 Fees (Processing Ext. of time) <input type="checkbox"/> 1.18 Fees (Issue) <input type="checkbox"/> Other _____ <input type="checkbox"/> Credit		